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10/679,002

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EXAMINER

CAI, WAYNE HUU

ART UNIT

PAPER NUMBER

2617

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                              |  |
|------------------------------|-------------------------------|------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/679,002 | Applicant(s)<br>BOSCH ET AL. |  |
|                              | Examiner<br>Wayne Cai         | Art Unit<br>2617             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2006.  
 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☒ Claim(s) 25 is/are allowed.  
 6) ☒ Claim(s) 1-18, 20-24 and 26 is/are rejected.  
 7) ☒ Claim(s) 19 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Claims 1-26 are pending.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. The term "about" in claims 5, 11, and 12 is a relative term which renders the claim indefinite. The term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

### ***Response to Arguments***

3. Applicant's arguments filed April 21, 2006 have been fully considered but they are not persuasive.

The Applicant firstly argues on page 7 of the Remarks that "Nothing in Kerns teaches that a single wire can carry both a CLOCK and a DATA signal as the Office Action seems to suggest by the cryptic quotation set forth above." In addition, the Applicant kindly requests the Examiner to identify where Kerns discloses any wire that carries ***a digital and at least one other electrical signal***.

Independent claim 1 requires a system bus including at least two signal-carrying lines, one of said lines carrying a digital signal and at least one other electrical signal. The Applicant is reminded that it is the Examiner's position to give a broadest reasonable interpretation of the claim features. Therefore, Kerns reads on the claim limitation as follows: CLOCK and DATA signal is two separate lines as stated by the Applicant. However, a DATA signal carries both digital audio signal as taught by Kerns and at least one other electrical signal as well because it is obvious and inherent in the art that it is difficult to separate the electrical signal from the data signal. For instance, the phone lines or the phone cables include a plurality of wires or lines. Each of this line comprises a telephone signal and a power signal as well. It could be true that the power line only comprises a power signal, but any other lines must at least include the intended signal and at least one other electrical signal. Hence, it is clear to one skilled in the art that Kerns teaches the claimed limitations.

In response to arguments of claim 4 at second full paragraph on page 9 of Remarks, the Examiner respectfully notes to the Applicant that "couple" is defined as to link or to connect two things or two components together. Claim 4 merely recites the system bus is coupled to one of a resistor or a current source, but does not restrict or specifically describes how the system bus is coupled to the resistor or current source. Hence, Kerns still reads on the claimed limitation.

In response to arguments of claim 7 at third paragraph on page 9 of Remarks, The Applicant further states that, "a simple two-wire point-to-point protocol does not constitute the claimed time-multiplexed multiple-signal-carrying composite wire protocol

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called for by claim 4.” The Examiner disagrees with the statements and respectfully refers the Applicant to details explanation of claim 4 set forth above. Kerns clearly teaches a communications are framed using an elongated clock pulse, and during each frame, some number of bits of audio data is sent to hearing device (see column 4, lines 9-18), in which it reads on a data signal that is time multiplexed into blocks having number of frames, each frame having at least one data slot.

In response to arguments of claims 8 and 9 of Remarks, the Examiner respectfully invites the Applicant to details explanation set fort in claim 7. Furthermore, it is clear to one skilled in the art that Kerns also teaches “Control Register” at Table 2.

In response to arguments of claims 14-16, the Applicant has amended “wireless **external** interface” to “wireless interface” with respect to claims 14-16. Since the Applicant does not specifically define exactly what “wireless interface” would be; therefore, the Examiner has a full position to give the broadest reasonable interpretation the meaning of “wireless interface”. “Wireless interface” could be an antenna, one device has ability to communicate with another device is obvious to have a wireless interface. Hence, Kerns still reads on the claimed feature.

With respect to arguments of claims 20, 23, and 24 on pages 11 and 12, the Examiner respectfully invites the Applicant to refer to explanations set forth above.

In response to applicant's argument of claim 10 that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., three different modes (dual, triple, and free slot modes) that each offer a flexible way to trade-off between the number of available slots and the precision

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of the data is being communicated.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to arguments of claims 5, 11, and 12, the Applicant merely recites the range of resistor, **but not high resistor pull-down**. The Applicant further recites the range of power consumption in claims 11, and 12. However, the Applicant never recites or makes it clear to one skilled in the art the reasons for selecting any particular range of resistor or power consumption. Even if the Applicant does offer a detail why such range is selected, one skilled in the art would easily modify and calculate the resistor value based on the fact that prior art, specifically Kerns teaches the power range up to 2V.

In response to applicant's argument with respect to claims 17, and 18 that Imaizumi is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Imaizumi particularly teaches "double-sampling" as claimed by Applicant. The Examiner also notes that when sampling, it is known by one skilled in the art that the system sampling the transitioned during any rising and falling edge of the clock and the clock signal is represented in a continuous signal, which is also a digital signal.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 6-9, 13-16, 20, 22-24, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Kerns (US – 6,144,748).

**Regarding claims 1, and 26,** Kerns discloses a portable communication device, comprising:

- at least one peripheral device including an electro-mechanical or electro-acoustical component (fig. 2, elements 225 & 227);
- a master component (element 213; and its descriptions);
- a system bus (elements 217 & 223) coupled to said at least one peripheral device (elements 211, 225, 227), said system bus including at least three signal-carrying lines (elements 214, 217, 223), one of said lines carrying a digital signal and at least one other between said master component and said at least one peripheral device (elements 214, "CLOCK", "DATA", and inherently at least electrical signal within the same line).

**Regarding claim 2,** Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses wherein said portable communication

device is one of a hearing instrument, a headset, a personal digital assistant, and a portable telephone, and is adapted to receive power from a battery to which one of said at least two signal-carrying lines is coupled (col. 2, lines 30-47; fig. 2, "PWR", "CLOCK", and "DATA").

**Regarding claim 3**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses wherein said electro-mechanical or electro-acoustical component is one of an electret-type condenser microphone, a MEMS-based microphone, a receiver, a telecoil, a volume control, a sensitivity control, and a switch (element 243).

**Regarding claim 4**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses wherein said system bus is coupled to one of a resistor and a current source (Table 1).

**Regarding claim 6**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses wherein said composite line carries at least any two of a power signal, a reference signal, a clock signal, a synchronization signal, and a data signal (fig. 2, "PWR" & "GND").

**Regarding claim 7**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses wherein said digital signal is a data signal that is time multiplexed into blocks having a number of frames, each frame having at least one data slot (col. 4, lines 9-19; fig. 4 and its descriptions).

**Regarding claim 8**, Kerns discloses the portable communication device of claim 7 as described above. Kerns further discloses wherein each of said number of frames



includes a control slot carrying control data between said master component and said at least one peripheral device (Table 2, "Control Register"), said data signal carrying audio data, a sample of said audio data being transferred via said system bus across at least two frames (col. 4, lines 9-18; fig. 4, and its descriptions).

**Regarding claim 9**, Kerns discloses the portable communication device of claim 7 as described above. Kerns also discloses wherein said data signal includes control data for controlling a characteristic of said at least one peripheral device (col. 5, lines 21-27).

**Regarding claim 13**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses wherein said master component is one of a digital signal processor and an ASIC (fig. 2, element 213).

**Regarding claim 14**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses further including a wireless external interface, said portable communication device being programmable via said wireless interface with programming data to cause internal parameters of said portable communication device to be adjusted (col. 2, lines 63-65, and col. 3, lines 46-56; fig. 2, elements 219 & 243 and its descriptions).

**Regarding claim 15**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses further including a wireless interface, said portable communication device being programmable via said wireless interface with audio processing data to cause real-time adjustment of processing parameters of

said portable communication device (col. 2, lines 63-65, and col. 3, lines 46-56; fig. 2, elements 219 & 243 and its descriptions).

**Regarding claim 16**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses further including a wireless interface adapted to communicate wirelessly data between said portable device and another portable device (col. 2, lines 57-59).

**Regarding claim 20**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses including an external interface (element 240), said interface being coupled to an external system bus that includes at least two signal-carrying lines ("CLOCK" & "DATA"), one of said lines carrying a digital signal and at least one other electrical signal between at least one external master component (element 241) and an external peripheral device that includes an electro-mechanical or electro-acoustical component (element 250), said external system bus being communicatively coupled to said system bus via said external interface (fig. 2, and its descriptions).

**Regarding claim 22**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses wherein said portable communication device is a hearing instrument (abstract)), said at least one peripheral device includes a microphone and a receiver (elements 211 & 225), said digital signal including a digital audio signal (col. 2, lines 57-65).

**Regarding claim 23**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses wherein said digital signal is a data

signal that includes control data for controlling a characteristic of said at least one peripheral device (col. 3, lines 46-56).

**Regarding claim 24**, Kerns discloses the portable communication device of claim 1 as described above. Kerns also discloses wherein said digital signal is a data signal that includes digital audio data (col. 2, lines 57-65).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerns.

**Regarding claim 10**, Kerns discloses the portable communication device of claim 1 as described above. Even though Kerns does not specifically disclose wherein said at least one data slot is programmable by said master component to include a plurality of data slot; it is however obvious to one skilled in the art to modify or program one data slot that include a plurality of data slots.

**Regarding claims 5, 11-12**, Kerns discloses the portable communication device of claims 1, and 4 as described above. Kerns also discloses said master component and said at least one peripheral device, operate at a voltage between about 0.7 and

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about 2.0 volts (Table 1). Kerns, however, fails to disclose wherein said resistor is between about 500 kilo-ohms to about 1200 kilo-ohms, the power consumption of said system bus is between about 30 microwatts and about 1 milliwatt, and the total power consumption of said portable communication device is between about 0.2 milliwatts and about 2 watts. However, it would be obvious to one skilled in the art that these components must be coupled to the system bus in order to operate. Furthermore, the selected range of resistors and the power consumption of the system bus solely relies on the design choices; therefore, it is not novel.

8. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerns in view of Imaizumi (US 2003/0206237 A1).

**Regarding claim 17**, Kerns discloses the portable communication device of claim 1 as described above, except for wherein each data bit transmitted on said system bus is sampled twice to increase immunity to glitches and noise on said system bus.

In a similar endeavor, Imaizumi discloses an image processing apparatus. Imaizumi also discloses wherein each data bit transmitted on said system bus is sampled twice to increase immunity to glitches and noise on said system bus (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a double sampling circuit in order to eliminate noises.

**Regarding claim 18**, Kerns and Imaizumi both disclose the portable communication device of claim 17 as described above. Imaizumi further discloses

wherein said composite line carries a data signal and a synchronization signal, said double-sampling of each bit permitting said synchronization signal to be transitioned during any rising or falling edge of the system clock of said double-sampling, whereby said double-sampling enables reliable discrimination between said data signal and said synchronization signal (abstract, and paragraph 0054).

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kerns in view of Muljono et al. (hereinafter "Muljono", US – 6,738,844 B2).

**Regarding claim 21**, Kerns discloses the portable communication device of claim 1 as described above, except for wherein said system bus is actively driven with tri-state buffers.

In a similar endeavor, Muljono discloses a method and system of implementing termination with a default signal line. Muljono also discloses wherein said system bus is actively driven with tri-state buffers (col. 1, lines 44-60, and col. 6, lines 3-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify and arrive at the claimed limitation by including the system bus actively driven with tri-state buffers in order to reduce the signal reflection.

#### ***Allowable Subject Matter***

10. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claim 25 is allowed as it includes allowable subject matter indicated in previous Office Action.

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne Cai whose telephone number is (571) 272-7798. The examiner can normally be reached on Monday-Friday; 9:00-6:00; alternating Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Wayne Cai  
Examiner  
Art Unit 2617



ELISEO RAMOS-FELICIANO  
PRIMARY EXAMINER